

1 What is claimed is:
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- 3 1. A method for removing acrolein from a process stream comprising
4 (a) providing a process stream comprising acrolein; and
5 (b) reacting said acrolein in the presence of an acid catalyst with a
6 scavenger compound containing a reactable thiol or hydroxyl moiety to
7 form an acrolein derivative in a refined process stream.
8
- 9 2. The method of claim 1 wherein said acid catalyst is a solid acid catalyst.
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- 11 3. The method of claim 1 wherein said process stream further comprises said acid
12 catalyst.
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- 14 4. The method of claim 1 further comprising adding said acid catalyst to said
15 process stream prior to said reaction step (b).
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- 17 5. The method of claim 1 wherein said reaction step (b) is conducted at a pH of
18 between 3.0 and 7.0.
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- 20 6. The method of claim 4 wherein said acid catalyst is selected from the group
21 consisting of glycolic acid and acetic acid.
22
- 23 7. The method of claim 1 wherein said scavenger compound contains a reactable
24 hydroxyl moiety.
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- 26 8. The method claim 7 wherein said process stream further comprises water.
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- 28 9. The method of claim 8 wherein said process stream includes 2.0 % to 3.0% by
29 weight water at commencement of said reaction step (b).
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- 1 10. The method of claim 9 further comprising the step of reducing the water content
2 of said process stream to no more than 0.5% water.
- 3
- 4 11. The method of claim 1 wherein said acrolein derivative is an acrolein acetal.
- 5
- 6 12. The method of claim 1 wherein said scavenger compound contains a reactable
7 thiol moiety.
- 8
- 9 13. The method of claim 12 wherein said scavenger compound is selected from the
10 group consisting of mercaptoacetic acid, 2-mercaptoethanol, 2-aminoethanethiol and
11 ethylene glycol bithioglycolate.
- 12
- 13 14. The method of claim 1 wherein said acrolein derivative is an acrolein thioacetal.
- 14
- 15 15. The method of claim 1 further comprising separating said acrolein derivative from
16 said refined process stream.
- 17
- 18 16. The method of claim 15 comprising distillation of said refined process stream.
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- 20 17. The method of claim 1 wherein said process stream further comprises
21 acrylonitrile.
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- 23 18. The method of claim 1 wherein said reacting step is performed in the substantial
24 absence of a cyanide compound.
- 25
- 26 19. The method of claim 1 wherein said process stream further comprises acrylic
27 acid.
- 28
- 29 20. A method for removing acrolein from a process stream comprising
30 (a) providing a process stream comprising acrolein; and

1 (b) reacting said acrolein with a scavenger compound containing a
2 reactable thiol or hydroxyl moiety at a pH of between 3.0 and 7.0 to form
3 an acrolein derivative in a refined process stream.
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